MEN and BOOKS

FOOD AND MEDICINAL PLANTS USED BY THE INDIANS OF BRITISH COLUMBIA*

J. H. MacDermot, M.D.

Vancouver, B.C.

The expression "Indians of British Columbia" covers a wide area, and includes people of widely varying stocks and habits. There are many tribes of natives, with wide differences in their physical makeup, their racial derivation, as well as in their habits and customs. The generic term "Indian" is an unfortunate one, applied as it is to people who are by no means of the same race or speech, and who have not tended to mix at all. Thus on the Coast of British Columbia we find a race of natives to whom the term "Siwash" has been applied, to distinguish them from the Thompson Indians, the Tahltans, the Crows that we find in the Eastern areas, the Indians of the Cœur d'Alene district of Idaho, those of Spokane and other American areas who have overflowed into British Columbia, and many others.

The Siwash or Coast Indian is of a very distinct racial and physical type. He is more like an Eskimo with his wide face, rather snub nose, and squatty build, than the hawk-nose, taller and leaner type identified in our minds with the word Indian. Like the Eskimo, he is a fish-eater, and it is possible that the original stock of the two is the same, or at least very similar. Teit's book[1] does not cover the Siwash Indians, with whom he had apparently very little contact, but *mutatis mutandis,* the remarks about plants apply to them too, though in a lesser degree, as there were many of the plants found in the interior to which they did not have access. They were fish-eaters, and lived by the sea. So they ate various forms of seaweed, and of the small succulent green plants that grow on the beaches of British Columbia.

FOOD PLANTS

The first thing that strikes one about the dietary of the native Indians of British Columbia, as it existed before the coming of the white man, is the complete absence of cereals of any kind, at least as we think of cereals. They had no wheat, oats, rye or barley, no rice or millet, no grains at all. They had no bread, as we think of bread. This is very remarkable, since the use of cereals as a staple article of food is almost universal otherwise, and its use goes back in history as far, almost, as we have any records. The corn, wine and oil of the early nomads of Syria, later the Hebrews; the corn of Egypt; the wheaten bread of our Anglo-Saxon forefathers; the oats to which, if we are to believe our Boswell, the Scots attribute their special natural and national excellences of quality; the rye of Germany and Russia and Eastern Europe; the rice of India and China and Japan; the mealies and maize of the Zulu and Kaffir and other African tribes; wherever you go you find a cereal of some order in wide use. These, history tells us, were all developed and bred from wild grasses and the like; at first very unpromising stuff, but improved by breeding through the generations till they became rich stores of food and energy.

Even amongst the Indians of Eastern and Middle Canada and the United States, maize, hominy and sorghum were used widely and cultivated more or less extensively. But after one leaves the Middle West and comes to the Rockies, the picture is different and we find practically no use of cereals at all. Even the Californian Indians knew nothing of them, and had no bread at all, except a sort of doughy cake that they made out of acorns and horse chestnuts.

That they obtained ample supplies of carbohydrates and fats together with all the needed minerals and vitamins, is shown by the rugged health of these natives, as will be attested by two instances I should like to give. In the museum in Vancouver, one can see some eighty skulls or so of early Indian natives, obtained from middens or elsewhere. Dr. G. E. Kidd of Vancouver, a nationally known archæologist and anatomist, tells me that in all these skulls you will not find one carious tooth, and very few missing ones, though a great many of them are the skulls of old people. Only in the Highlands of Scotland and in the Hebrides can a parallel instance of dental soundness be found. In these areas people lived all their lives on oats and milk and fish, and the few plants at their disposal. Our modern emasculated diets cannot show any such result, unless we supplement them from the shelves of the drugstore.

Again, a story of a settlement at Pemberton Meadows, some fifty or sixty miles from Vancouver, as one goes inland from the head of Howe Sound, is of interest in this regard.

Some fifty years ago, Dr. W. D. Keith of Vancouver, who is still in active practice, and is a Senior Member of the Canadian Medical Association, was visiting the neighbourhood of Pemberton Meadows. The Squamish tribe of Coast Indians lived at the seacoast: Pemberton Meadows was some thirty or forty miles inland. Here was a settlement of Old Country people who had moved in some years before, and were engaged in farming. When he went there, they were thinking of moving out, bag and baggage. Their whole settlement was dying out; their pigs and dogs had malformed and misshapen litters, and most of them died at birth. Their cows lost their calves, and they themselves suffered from disease. Their women and children were chronically tired and un-

* Read at the Seventy-ninth Annual Meeting of the Canadian Medical Association, Section of Historical Medicine, Toronto, June 25, 1948. Some abridgement has been necessary.

healthy, the women having frequent abortions, and a large proportion of them suffered from goitre of the endemic type. They had decided to leave while they were yet able.

At this time, the medical profession, through the work of Marine of Boston and others, was beginning to trace the connection of this type of goitre with the lack of iodine in the dietary intake. Keith was in correspondence with Marine. He had visited the Indian settlement at the coast, and had noticed that all the people there were healthy, and free from the goitrous growths that beset the whites further inland. Their pigs and dogs were healthy and fertile; they had no cows. He knew that they lived mainly on fish and clams and that they ate seaweed, and he knew that iodine was to be found in relative abundance in these foods. Their animals ate freely of the fishheads and offal from the middens, and this accounted for *their* freedom from goitre. So he went back to Pemberton Meadows, and suggested the administration of iodine in the drinking water and food. To cut the tale short, Pemberton Meadows is now a healthy and thriving community.

If one will take the trouble to look around him, or is forced to the search by necessity, there is seldom any difficulty in finding an ample supply of carbohydrates ready to one's hand. Cereals are one main source, where the starchy content of the grain is intended to be a store of food for the maturing plantlet after germination in the soil. But there is another very great source of carbohydrate, examples of which appear in our own dietaries. This is the rootstock of plants. The potato, for instance, the yam, the sweet potato, the peanut, are examples of tubers or tuberous roots, filled with starches or sugars or both, to maintain a store of nutriment for future plants as they develop.

The Indians had discovered this source of carbohydrate, and made full use of it. It is obviously as good a source as any, and only requires a digging-stick, and later a pestle and mortar, together with various techniques of cooking and preparation. It is a most abundant source of food, inexhaustible, requiring no hard work of cultivation or clearing of land, and it can all be done by the women of the tribe, especially the older women. It suits the Indians exactly.

The proteins that they needed they obtained from fish, deer or other game and birds. Fish was always a major article of diet with the Coast Indians, who had vast resources in the waters that bathe the Pacific coast—salmon and cod and oolachan. The latter was also known as the candlefish. So oily is it that one can light a dried oolachan as one would a candle, and it will burn like a torch. The Indians love its grease, especially when it is a bit high, eating it as we eat butter, on bread. They had, too, vast stores of clams and other shell fish. The Indians of the interior had deer, bear and grouse and other birds in abundance. From the deer they extracted fat, and used its blood. The bear, too, was a source of a most valuable grease which was used not only internally, but for mixing with various ingredients to make salves and other external applications.

So we see that these natives, isolated from the rest of the world, still found at their disposal good store of nourishment and of the essentials of a good diet. Not only did they get carbohydrates and fats from their food plants but they obtained, too, minerals and vitamins and those flavours and sapid essences which give taste and zest to a diet. They showed considerable ingenuity in their search for food, in its preparation, and in their combinations of foods. They had jams, jellies, preserves, salads, as we do; they even had chewing gum and tobacco. They had perfumes and fragrant essences. About the only thing they never seem to have made out of their plants is any form of alcoholic drink. At least we cannot blame alcohol for their backwardness. In this particular they are unlike the majority of their fellow men. The B.C. Indians and the Eskimo seem to be among the few people who have been able to attain a fair degree of development as an organized people without having discovered the qualities of alcohol.

Amongst the Mendocino Indians of California, the manzanita berry was made into a very palatable cider-like drink, but this was mainly drunk in its fresh, unfermented, state. Occasionally it fermented, and acquired alcoholic properties, but the natives do not seem to have pursued this to its logical conclusion. Whether they missed anything or not is, of course, a matter of personal opinion. It is of interest, too, to note that they did not use milk. They had no domestic animals apparently, no goats or cows or mares or camels or any of the other milk-bearing animals. Milk is not, however, an essential to a complete diet, except for the infant, and this lack is of little significance.

Teit,[1] in his article on plants used as food, says,

"Few plants with edible roots have been overlooked by them. They have been used as food, for chewing, medicine, dyes, basket making and cordage. The finding, digging and gathering are women's work. The abundance and nutritive value of fleshy roots and underground stems makes them particularly important as a source of food, and many of them are rich in medicinal properties.

"Roots were eaten raw or cooked, boiled or roasted, preserved by desiccation. Plants bearing any kind of an edible tuber, small or large, were utilized. Many of the bulbs were scarcely larger than a hazelnut. Bulbs, stem tubers, rhizomes or corms were eaten without distinction. Flower heads, the tender and succulent shoots of cow parsnip and salmon bear berry, too, were eaten."

Some of these roots, like the cassava root of the Fiji Islands, contained poisonous alkaloids, and these were removed by a process of lixiviation. The roasted and pounded flour was washed repeatedly, till the poison was all removed. The California Indians made great use of acorns, horse chestnuts, etc., from which they obtained flours that could be used for the preparation of cakes and of bread. These unappetizing nuts required a great deal of prepa-

ration before the flour extracted from them could be safely used. In the case of acorns, there is considerable tannin, and a bitter glucoside; and these are removed by various methods. The description of the "best" method makes one wonder whether it is worth while to go through such a long and complicated process to achieve such a small result. But the Indians had plenty of time, and in any case the work was chiefly done by women, usually the old squaws or a superannuated brave, "who", as Teit says, "alone have the requisite patience and unlimited time".

The acorns were ground, after thorough drying and exposure to the weather. After endless pounding on flat stone and shaking, followed by sifting through specially made baskets, a meal is obtained, bitter and astringent. This is mixed with water, filtered through sand beds repeatedly, till a dough-like mass is obtained. This is made into a mush and eaten without salt. It is described as rather sweet and quite palatable. It can be made into bread. The horse chestnut when raw is poisonous, and requires considerable treatment. It is roasted and then mashed, rubbed up into a paste with water, and filtered through sand, as with the acorns. Its taste after final preparation is said to resemble that of boiled potatoes.

Rootstocks and tubers containing starch were pounded after roasting, and the flour thus obtained was mixed into pastes with berries and animal fat, especially deer fat, the combination being boiled together. Deer's blood, regarded as a delicacy, was also added. An extensive trade between the interior and coast Indians was carried on. The coast natives exchanged fish, sometimes preserved with various flours and pastes, for the deer's meat and fat of the interior.

Ceremonies and religious observances were sometimes connected with the digging of the roots, and the calendar of the Thomson Indians is based upon moons which shine during seasons when roots were ready to be dug or berries or other fruits were ready to be picked. At Spence's Bridge, near Ashcroft, the "seventh" moon was designated as "the people dig roots" moon.

The list is altogether too long to give in any detail—but some of these roots and tubers are worth mentioning. There is the Camas, one of the commonest in British Columbia, a member of the lily family, the bulb being about the size of a small hyacinth. It flowers in May, and is to be found in abundance in the grassy areas. The women go out when the plant is in bloom with its spike of beautiful blue flowers, and dig up the bulbs. These are cooked in a kiln about ten feet in diameter, and roasted; when they acquire a rich brown colour, they are sweet and aromatic. The kiln is a hollow in the ground two or three feet in depth, filled with large stones, on which fires are built till the stones are red-hot. Grass is placed on the stones, the Camas on the grass, more grass and mats laid, and earth heaped over it all. The Camas stays in the kiln for several days. It can be eaten raw, is glutinous and somewhat sweet. It was one of the main food plants of British Columbia Indians.

Other bulbs eaten are those of the tiger lily, which is slightly bitter, and is boiled or steamed. To quote Mr. Perry, "It is an excellent substitute for the potato, its flavour somewhat like that of a roasted chestnut, with a slight bitterness which renders it very agreeable".

The Mariposa Lily, the Rice-Root, Erythronum grandiflorum or Avalanche Lily, the "Indian Potato" (Claytonia Lanceolata) and others also furnish bulbs used in the same way, and there are a great many others.

Among the roots which are eaten, are many which have greatly enlarged stems, tuberous and acting as stores of food for the plant. For instance, ferns such as bracken have large succulent roots. These are roasted over a fire, the skin stripped off, and the interior pounded to separate the fibre from the edible part. Shield-fern has a large fleshy rhizome, and is prepared in the same way. Bitter-root, after which the Bitter-Root Valley in Montana, is named, is something like the Portulaca, and has a beautiful pink rose-like blossom. Its roots are thick and bifurcated. They are dried, and sometimes eaten in that state or boiled into a pinkish jelly. It is stored for the winter, and used as an article of trade with other tribes for dried salmon, etc.

While the Indians do not have salads in the ordinary sense of the word, like our forefathers of the Elizabethan times, they have a great many plants whose crisp and succulent stems and leaves are used for the same purpose. Probably the mineral content of these stems, as well as the juiciness and flavour, constitute their value. Thus cow-parsnip, called "Chou Creux" by the French-Canadians, is eaten in different forms. The flower-stems are eaten before the flower opens, the stems are chewed; the tops are roasted and eaten. Sir Alexander McKenzie, on his journey of exploration to the Pacific Coast in 1793, found it a most useful and acceptable vegetable as an adjunct to pemmican, his staple article of food.

Finding, digging and gathering of plants is women's work. There is a legend of the Thompson River tribes which runs as follows. There was a very powerful and influential woman who lived at Lytton. She was taken away by a great chief, some say by the Sun. She wanted to leave provisions for her people, so she dropped edible roots at Botani, saying "Roots will grow in abundance in this place, and all my children will repair here to dig

them". The women make the baskets and the dyes to colour the fabric. They build the ovens; do the digging with a "digging stick", long, curved and sharp at the end.

The older women are particularly employed in this way. A woman of the tribe is chosen (or might volunteer) to watch the berry ground, and when they are ripe to notify the other women. Probably, as is the custom among all primitive peoples, they have developed simples and medicinal remedies by observation and experiment.

Many plants were valued, not directly as foods, but as adjuncts to food. Many furnished non-medicinal drinks and teas—every race has its quota of these—others were used for obtaining perfumes, to produce charms, for purification before labour, before and after menstruation, and so on. Smoking was common amongst the men, only occasionally permitted to women. Tobacco plants grew wild, but curiously enough, we are told, the weed was rarely used by itself for smoking, but mixed with other leaves. Kinnikinnick is the name given to mixtures of tobacco with leaves that make a smokable, aromatic preparation. Valerian and bearberry, dogwood bark, arrowwood, whortleberry are amongst those that were used.

Nuts and seeds were eaten as we eat nuts, for the fats contained therein. Many pines, firs, and junipers yield nut-like cones and seeds. There were species of sunflowers whose seeds contain much oil. Hazelnuts grow widely in British Columbia. Many seeds were prepared by pounding in a mortar, mixing with deer's fat or deer's brains, and boiling—later by making into cakes.

Chewing gum is by no means confined to the factories that make Spearmint and its large family of competitors. The Indians chewed gum quite extensively — hawkweed, rattlesnake-plantain, the vegetable oyster, fleabane, balsam root: the list is long.

The Indians of British Columbia seem to have done no cultivating of the soil. They had no fields or gardens, no orchards, and did nothing to develop any form of agriculture. Thus they knew nothing of apples or pears or any other of the fruit that other races grow, each according to its peculiar climate. They depended entirely upon Nature's whims and choices, and, while they missed much in fragrance and variety, they still had, easy of access, a large store of fruit.

Almost every variety of plant yielding a fleshy edible fruit has been used by the Indians. The Saskatoon berry or Juneberry, known to the Indians as "Oolalie", was dried, mixed with pemmican, deer-fat, etc., or with other berries, and was a staple article of food. It was made into cakes, cut in slices, boiled with meal to form a porridge called "rubbaboo". Other berries used were the salmon-berry, (the shoots sometimes eaten with salmon-roe) the thimble-berry, wild strawberry, oregon grape, even the salalberry, one of the most unpalatable berries imaginable. The woods and fields of B.C. are full of berries, most of which are edible. Raspberries, currants, blackberries, strawberries, blueberries, cranberries, the elderberry. The nearest approach to an apple is the Oregon crab, a small pome, tart but juicy, and sometimes eaten by the Indians.

Various exudates, sap and so on, were eaten after being collected and allowed to dry; some of these were from the evergreens, fir and pine —lodgepole pine, yellow pine, quaking aspen, etc. Spruce gum has long been in use throughout Canada, and it is quite likely that these gums were chewed and sucked for their antiscorbutic value. The milky latex of goat's beard or the oyster plant was also used.

MEDICINAL PLANTS

Teit[1] gives a very comprehensive list of plants used by them in the treatment of disease, and goes into considerable detail as to the medicinal uses of each. He states that they made use of 160 plants in their pharmacopœia. Of these he says about 30 are also used by us today. Many you will readily recognize. Ergot, valerian, erigeron, veratrum viride, Solomon's seal, hellebore, aconite, willow, from a variety of which we obtain salicylates, juniper berries, cascara, arnica; these are all to be found in the white man's list of plants from which he obtains medicine. It has always been a puzzle to me how our forefathers discovered the properties of healing that lie in plants. How the poppy came to yield its magical secrets; how digitalis was first recognized as a specific for the swollen legs and bellies of cardiac failure, and a restorer of quiet breathing; and why cinchona bark should have been found to quiet the agues and warm the chills of malaria. The priest had his incantations, even his surgical measures, such as trephining, wherewith to exorcise the evil spirits that beset men's minds and bodies, but the discoveries of the sanative powers that lie in the leaves and roots and barks of the trees and flowers seem to have been made by the older women of the tribe or race—the wise women. The records among the Indians would seem to show that this was true in their case, too.

It stands to reason that their therapeutic knowledge was entirely empirical, and most of it, perhaps, by any scientific standard, of very doubtful value, but it was probably at least as good as the practice of, say, the physician of the time of Charles II of England. If we read the accounts of the medication of those days, with its mixture of empiricism, occultism, and fetichism, we cannot feel that the Indian was so very far behind.

Like ourselves, they made use of many plants whose alkaloids, glucosides, and the like,

are highly dangerous to life. Thus false hellebore, aconite, veratrum viride, the Camas or death plant all contain elements which must be given in very small doses, and very carefully; an overdose is very easily fatal. In our own pharmacopœia, we can think of nux vomica, digitalis, opium, the coca plant, to mention only a few. Thus they used the Camas, or death lily, as a food, a medicine, and a poison, for suicide or other purposes.

They stumbled on certain discoveries, as our forefathers did. They knew of the healing power of green leaves, where we talk of chlorophyll as a healing agent; they had expectorants, oxytocics, anodyne plants, laxatives, and so on. No doubt they mingled a great deal of superstition and mumbo-jumbo with their medicine, reinforcing their small knowledge with incantations and so appealing to the passion that all men have for a little magic mixed with their medicine. But our forefathers of Culpeper's time did the same, and we can throw no stones.

The commonest method of preparation of their medicines was decoction of the leaves or stems or even roots of plants by boiling in water. They drank the decoction, or applied it externally. Naturally, they had no method of making tinctures. They prepared salves or ointments by mixing the ashes of some plants with bear's grease or deer fat. They knew the value of charcoal as a digestive aid, and used it for cramps in the bowels or stomach. For this purpose, too, they had carminatives, such as mint and wild ginger, drunk in the form of a tea.

Consider our own classification of drugs according to their use. First, *the respiratory system.* Here we use expectorants and sedatives, and so did the Indians. Like us, they resorted to the conifers—the scrub pine, the white fir, with their balsamic resins. Wormwood or sagebrush, which grows freely in the dry areas, *e.g.*, near Kamloops, provided them with decoctions to be drunk hot as an expectorant tea. The leaves were crushed and the patient's nostrils plugged with them. The volatile oil of the leaf gave relief. They had a plant they called the "cough-plant", whose leaves and stems they chewed to relieve coughs. We find many plants used for blood-spitting. *Uva ursi,* or bearberry was one of them, and it was also used for its diuretic properties as with us. Windflower leaves, (they called the anemone the bleeding-nose plant) were used to plug the nostrils in case of epistaxis, and also for blood-spitting. Wild raspberry was extensively used for this purpose, too.

The digestive system.—Here we find a long list of stomachics, digestives, carminatives, laxatives, tonics for appetite, even remedies for piles. Black hawthorn, mountain rhododendron, yarrow, wild ginger, the mountain anemone, all these yielded tonics and stimulants to appetite and digestion. Purgatives include cascara, of which B.C. is one of the greatest sources, veratrum viride or false hellebore, and other plants. The *Rhamnus purshiana* from which cascara is obtained, provided the Indian's alimentary canal with almost everything a human alimentary canal could desire. In small quantities, it was a bitter tonic, in larger a laxative or purgative, even sometimes an emetic.

A most interesting plant, and one that is very prominent in Indian materia medica is the devil's club, a pernicious bush that has long curved thorns, which grasp the unwary passer-by by hundreds of hooks and are hard to detach. It is, I believe, something like the wait-a-bit plant of South Africa and the West Indies. Its appropriate name is *Fatsia horrida.* The stems are crushed and soaked in water. This is drunk as a medicine for stomach disorders and indigestion. It is made into an ointment by burning the stems, and mixing the ashes with grease. It has apparently a hygroscopic and detumescent effect on swellings. But the most interesting thing about it is the observation made by Dr. G. E. Darby of Bella Bella some years ago, who reported that the Indians of his neighbourhood used an infusion made from the roots in diabetes, and found it a specific. He had observed its use, and thought it of value. Large quantities of the roots were sent to the University of Toronto Biological Laboratories for investigation, to ascertain whether or not such a preparation could in any way do some at least of the work of insulin. I do not believe any success was obtained but I have personal knowledge of one white diabetic who had lived near Bella Coola for years and was in the habit of taking this decoction freely. He stated that it kept him in perfect health, and I have heard of one or two others. His urine still showed sugar, but he claimed that he could eat whatever he wanted, maintain weight, and feel quite well, as long as he drank plenty of devil's club infusion.

Headaches were treated by cow-parsnip decoction, hog-fennel, the seeds being ground and inhaled as smelling-salts. The Indians knew, as we do, the value of the juniper berry as a diuretic, and bladder sedative. The berries were sometimes eaten fresh, or made into decoctions. The rockcress — *Arabis drummondii* — was also used for this, and a very strong infusion of it was used for gonorrhœa. Apparently, any diuretic berry or leaf was utilized for the treatment of this disease, and might be of considerable value by increasing the flow of urine, and allaying local irritation. A great many strong infusions and decoctions are used for syphilis, but one must doubt if they are of any value, especially as so many varieties are in use.

Rheumatism, Teit tells us, is very common amongst the Indians, and they had many ways

of treating it. Hot packs, steam baths, were used as well as infusions from many leaves and plants. Their therapy verged on the heroic. The description of their steam-baths in sweat-houses tallies somewhat with what one reads of the way steam-baths are given in Russia, Finland, etc. Our reporter, Mr. Teit, tells us that the steam from hot rocks permeating through layers of worm-wood leaves, was very often very helpful; but that on rising from his sweat-bath, the patient plunges into an ice-cold stream, with sometimes fatal results. For a rheumatic subject the cold plunge would hardly recommend itself to us.

Children's ailments received careful attention. Various carminatives, *e.g.,* wild mint, ginger, mildly laxative plants and so on, were used in their pædiatric practice, and one sedum, *Sedum spathifolium,* had an especial application. A warm decoction of the whole plant was used for bathing them, especially when cross; it was said to have a soothing effect. A decoction of larch was used as a wash or bath for babies, whom this preparation was believed to make strong and healthy.

Women, especially when pregnant, or in labour, had their own specific remedies. They do not seem to have been aware of the oxytocic properties of ergot, but had other decoctions that they used. Amongst these, the Prince's pine or pipsissewa, and the rattlesnake plantain were both used by women in childbirth, or at times a warm decoction of the leaves of the pipsissewa was drunk copiously by women either before or after. Wormwood or sagebrush leaves were made into a brew, and this was taken after childbirth as a pick-me-up. The western chokecherry was also used for this purpose; its bark being boiled and the fluid drunk. For hastening the expulsion of the placenta a strong decoction of the "berry plant", or northwestern service-cherry, was taken, immediately after the birth of the child.

There were many preparations for external use. Many plants whose leaves contained some soothing property were mashed and made into poultices: charcoal was used for this purpose. Sometimes these mashes were mixed with bear's grease or deer fat, and spread liberally on sores or swellings. Sarsaparilla decoctions were taken internally for pimples or skin eruptions, and we may note that the white man has used this same plant for the same purpose. The ashes of horsetail, mixed with grease or a thick oil, were smeared over burns thickly. Spruce gum or pitch was used a great deal for dressing wounds and poulticing boils, and the spruce gum was used with splints to immobilize fractures.

They had a considerable number of remedies for skin troubles and eruptions. Lotions were made from Oregon grape and from flax, the flowers, leaves and stems being soaked in warm water, and used as a wash for the head by pubescents, especially female. It is believed to be good for the hair, and when used on the skin, it increases the beauty.

One finds mention frequently of preparations used for "sore eyes". These were in the form of mashes, *e.g.,* yarrow, and many others, salves and greasy preparations, and poultice mashes of leaves—probably astringent and soothing.

Dr. Darby[2] refers to the "inexhaustible supply" of remedies that the Indians employ. One of the commonest, he says, is sea-water. This is used when they feel vaguely unwell, both as an emetic, and as a laxative. From time to time, one reads articles by doctors, lauding the value of sea water from a medicinal point of view, and it is possible that there is something in it.

The Indians used certain plants from which to obtain scent or perfume. They do not seem to have had any method of extracting the essential oils from which the perfume comes, but used the plant as sachets, wound it in necklaces, stuffed it into pouches, pillows, bags, wove it into baskets, tied it to their arms or wove it into their hair. They liked pungent scents rather than the more delicate fragrances. Canada mint, Jerusalem oak, sweet-grass were amongst their favourites.

They had, too, plants that they used for purification and in religious rites, before hunting or fighting; some that adolescents used during their puberty ceremonials, others after delivery and so on. The general method was to prepare drinks and washes from them. The drinks were mainly emetic and purgative, and so cleansing; the washes were poured over the person as he or she came from steaming the body in the sweat-house. The list is long and includes many conifers, nettles, buttercup, a fungus known as owl wood, etc.

One could go on for a long time, and could enumerate a long and wearisome list of plants that have been used medicinally. I have said enough, however, to show that the Indian, like every other race, was not entirely helpless before disease. A child of Nature, he looked to his Mother for all his needs, and she comforted him, and eased his sufferings.

In preparing this paper, I have been very greatly helped by the records and reports of some men who have done a tremendous amount of work in collecting and putting together facts regarding the plants used for food and medicine by the Indians of the Coast, of British Columbia in general, and of certain of the States, west of the Rockies, notably California.

The chief of these writers was the late James A. Teit of Spence's Bridge, B.C., who made perhaps the greatest single contribution on the subject. Teit was a remarkable man. He lived with and among the Indians for many years, and amassed a vast deal of information about their habits of life, food, social customs, etc. His book[1] is a standard work on the subject. It is a most readable and comprehensive volume. A considerable amount of the book is given up to plants, their uses for

food, for medicine, for crafts such as basket-making, fishing, (one poisonous plant was used by being thrown into the stream to render the fish stunned and unconscious) and so on. Plants were used for making dyes and paints, for perfumes and cosmetics, for making charms, which played an important part, we are told, in the lives of the Thompson Indians; and good luck charms, especially useful when one was about to gamble, love philtres, charms for hunting and fishing, were all available. Canoes, bows, rope and string, blankets, bags, mats, baskets and all sorts of woven articles were made from plant fibres. They had no wool, since they kept no herds of animals of any kind, and so had to depend on vegetable fibre. Into all these matters Teit goes very fully. Unfortunately, after his death, a great many of his most valuable manuscripts were destroyed, which was a great loss.

Mr. Fred Perry of North Vancouver has been good enough to lend me books and notes based on his association with Mr. Teit, which was very close. His condensation of Teit's work on the Ethnobotany of the Indians and his own personal notes, have been very helpful. Dr. G. E. Darby of Bella Bella, Superintendent of the R. W. Large Memorial Hospital, has also been kind enough to give me material dealing with the subject. No medical man in British Columbia knows more about the Coast Indians than Dr. Darby, who has worked among them for a generation or more, and is thoroughly trusted by them. Dr. W. C. McKechnie of Vancouver, brother of a Past President of this Association, and a keen and highly expert botanist for many years, was good enough to put me in touch with Mr. Perry and others, and I am happy to acknowledge my obligation to him.

REFERENCES

1. TEIT, J. A.: The Ethnobotany of the Salishan Tribes of the Western Plateaux, U.S. Bureau of Ethnology.
2. DARBY, G. E.: Bella Bella (Personal communication).

MEDICO-LEGAL

SEXUAL STERILIZATION WITHOUT PERMISSION*

T. L. Fisher, M.D.

Secretary-Treasurer, Canadian Medical Protective Association, Ottawa, Ont.

In this column in the May and July issues of the *Journal* there appeared a discussion of the legal aspects of sterilization, in which it was said:

"For the past five or six years the Canadian Medical Protective Association has become, and is becoming still more, increasingly concerned over the casual attitude adopted by doctors towards the sterilization of patients. . . . So far as the Association can judge, sterilization is often done in a wholly casual, completely thoughtless fashion, as an incidental and often unnecessary part of some other surgical procedure. . . ."

As well as the action reported in that discussion, which was against a doctor because of unauthorized sterilization, it was stated another doctor had been threatened by action. Those threats were followed by court action against the doctor and judgment was given for the plaintiff. Because the judgment seems to put so clearly the whole case against sterilization, unless it be an integral, necessary and unavoidable part of some surgical procedure undertaken to preserve the health or life of the patient, this case is reported.

The patient was admitted during the night, the membranes ruptured about the time of admission and by early morning labour was established. It continued throughout the next day with little progress. About twenty-four hours after labour began a consultant and the doctor attempted forceps delivery unsuccessfully. Some two hours later Cæsarean section was done with the delivery of a live baby which, however, lived only about eight hours. At operation: "There were numerous fibroids present in the uterus, the largest one, about the size of a tomato, was enucleated and the remainder left *in situ. Both tubes were tied.*" (Italics ours.)

It was learned the doctor had explained to the husband that a state of emergency existed; had stated to him what had been done and what it was proposed to do; had determined that the consultant met the husband's approval; had asked for permission for sterilization if it was found necessary and had received verbal permission to do whatever seemed best. The doctor felt sterilization to be wise because of the fibroid uterus, the disproportion and the Cæsarean section.

The case came to trial in the Supreme Court of British Columbia before Mr. Justice MacFarlane who, in his reasons for judgment, began by summarizing the facts of the case and the evidence given by the various witnesses as it bore on his decision and went on to say:

"At the time of the confinement, when difficulty was being encountered in delivery, the husband, at the request of the surgeon, signed a permission for a Cæsarean operation and any further surgical procedure found necessary by the attending physician. The defendant says that at the time he mentioned to the husband the possibility of sterilization and that the husband was satisfied with his consultant and with this procedure, I presume, if he found it necessary. I do not intend to discuss that at length because I think the law is clear that if that were necessary as opposed to being convenient, for the protection of the life or even for the preservation of the health of the patient, the surgeon would be entitled to take the intended procedure. I think, on the evidence also, I must find that there is some hazard to the plaintiff in undergoing a second pregnancy due to the possibility of the rupture of the Cæsarean scar and the possibility of the regression of the fibroid tumours weakening the wall of the uterus.

"The question I think I have to decide is whether the surgeon has authority to take this additional step at the time of the operation in view of the possibility of some future hazard without the consent of the patient, convenient or desirable, as in his opinion it may be, to

* *Murray vs. McMurchy.*